WHAT IS CLAIMED IS

1. A RF switch comprising:

a. a non-conducting substrate having thereon two RF traces separated by a first gap, and at least one ground trace coplanar with said RF traces and separated from said RF traces by a second gap;

b. at least one membrane positioned substantially in parallel and connected with said substrate, said at least one membrane configured to electrically bridge across at least one of said gaps, said membrane deflectable in a membrane mode; and

c. an electrical mechanism for moving said at least one membrane between two switching configurations, a first switching configuration in which said at least one membrane bridges electrically at least one of said gaps, and a second switching configuration in which said at least one membrane leaves each of said gaps electrically open.

2. The RF switch of claim 1, wherein said configuration of said at least one membrane to electrically bridge is effected by said membrane being electrically conductive.

3. The RF switch of claim 1, wherein said configuration of said at least one membrane to electrically bridge is effected by said membrane having disposed thereon a conductive bridge.

4. The RF switch of claim 2, wherein said at least one membrane is made of conducting silicon.

5. The RF switch of claim 3, wherein said at least one membrane is made of silicon nitride.

6. The RF switch of claim 1, wherein said electrical mechanism includes thin-film electrodes operative to interact electrostatically to move said membrane in said deflection mode, thereby providing said two switching configurations.

7. The RF switch of claim 6, wherein said thin film electrodes include at least one set of bottom, middle and top electrodes substantially aligned in a direction perpendicular to said substrate.

8. The RF switch of claim 7, wherein each said bottom electrode is identical with one of said ground traces.

9. The RF switch of claim 3, further comprising at least one pair of stoppers facing each other, one stopper of each said pair positioned co-planarily with said RF and ground traces on said substrate, and the other stopper of each said pair positioned co-planarily with said bridge, said stoppers serving to prevent unwanted contact between said bridge and an electrically conducting element on said substrate.

10. The RF switch of claim 1, wherein said first switching configuration in which said at least one membrane bridges electrically at least one of said gaps includes said at least one membrane connecting electrically said first gap, thereby providing a closed series RF switch configuration.

11. The RF switch of claim 1, wherein said first switching configuration in which said at least one membrane bridges electrically at least one of said gaps includes said at least one membrane connecting electrically said second gap, thereby providing a closed shunt RF switch configuration.

12. An electromagnetic wave switching device comprising:

a. a deflectable membrane configured to electrically bridge a gap between conductors formed co-planarily on a non-conducting substrate; and

b. means to deflect said membrane in a membrane deflection mode, whereby the switching device is in a closed position when said deflection causes said electrical bridging of said gap, and whereby the switching device is in an open position when said deflection keeps said membrane apart from said gap.

13. The switching device of claim 12, wherein said electromagnetic radiation is RF radiation.

14. The switching device of claim 13, wherein said membrane and said substrate are parallel to each other, and whereby said deflection is essentially perpendicular to said substrate.

15. The switching device of claim 13, wherein said membrane and said substrate are perpendicular to each other, and whereby said deflection is essentially parallel to said substrate.

16. The switching device of claim 13, wherein said RF conductors include two RF traces separated by a first gap, said electrical bridging including electrically shorting said RF traces across said first gap.

17. The switching device of claim 13, wherein said RF conductors include at least one RF trace and at least one ground trace, said at least one RF and ground traces separated by a second gap, and wherein said electrical bridging includes electrically shorting said at least one RF and ground traces across said second gap.

18. The switching device of claim 13, wherein said membrane is made of conducting silicon.

19. The switching device of claim 14, wherein said membrane is made of a non-conducting material, the switching device further comprising a conductive thin-film bridge disposed on said membrane and facing said substrate.

20. The switching device of claim 15, wherein said RF conductors are RF traces that further include sections perpendicular to said substrate and separated by a perpendicular gap identical with said first gap, each of said sections having a flat plane substantially parallel to said membrane, said parallel deflection of said membrane effecting an electrical bridging of said RF traces across said perpendicular gap in said closed position.

21. The switching device of claim 12, further comprising an additional stretching mechanism attached to said membrane, said stretching mechanism operative to change a

stretching condition of said membrane, thereby assisting in obtaining said membrane deflection mode.

22. A method for obtaining rapid electromagnetic wave switching using a MEMS device comprising the steps of:

a. providing a deflectable membrane configured to electrically bridge a gap between electrical conductors formed co-planarily on a non-conducting substrate; and

b. deflecting said membrane in a membrane deflection mode, to bring said membrane to a closed switching position defined by an electrical bridging of said gap, and to bring said membrane to an open switching position in which said membrane is kept apart from said gap.

23. The method of claim 22, wherein said electromagnetic radiation is RF radiation, and wherein said electrical conductors are RF traces.